UNITED STATES PATENT AND TRADEMARK OFFICE

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DICKSTEIN SHAPIRO LLP
1825 EYE STREET NW
Washington, DC 20006-5403

EXAMINER
LEE, TOMMY D

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

PTOL-90A (Rev. 04/07)

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on <u>29 August 2007</u>.

2a)☒ This action is **FINAL**.   2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1,3-13,15-21 and 23-28* is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,3-5,9,11-13,15-21,23-25,27 and 28* is/are rejected.

7)☒ Claim(s) *6-8,10 and 26* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a)☐ All   b)☐ Some * c)☐ None of:

      1.☐ Certified copies of the priority documents have been received.

      2.☐ Certified copies of the priority documents have been received in Application No. _____.

      3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1)☐ Notice of References Cited (PTO-892)

2)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3)☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4)☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5)☐ Notice of Informal Patent Application

6)☐ Other: _____.

DETAILED ACTION

Response to Amendment

1.   This Office action is responsive to Applicant's AMENDMENT IN RESPONSE TO

NON-FINAL OFFICE ACTION, filed August 29, 2007. Claims 1, 3-13, 15-21 and 23-28

are pending.

Response to Arguments

2.   Applicant's arguments filed in response to the rejection of claims 13-20 under 35

U.S.C. 101, as set forth in the prior Office action mailed May 1, 2007, have been fully

considered but they are not persuasive.

On page 12 of the current amendment, Applicant states that claims 13-20 have

been amended consistent with the suggestion of the Office, and thus the rejection

should be withdrawn. However, the claims were not amended to include the presence

of a *computer readable medium*. The claims currently recite: "A computer-readable

program ... embodied on an *information storage medium*" (emphasis added). As

mentioned in the prior Office action, functional descriptive material must be embodied

on a computer readable medium to impart its functionality. See MPEP § 2106.01.

3.   Applicant's arguments filed in response to the rejection of claims 27 and 28 under

35 U.S.C. 112, second paragraph, as set forth in the prior Office action, have been fully

considered but they are not persuasive.

In response to the above rejection, Applicant states on pages 12-13 of the

current amendment: "Claim 27 is definite and recites an operation of a table converter

as part of the image-area separation process. Claim 28 is definite and refers to

intermediate data being calculated and used as part of a sequential process. Thus, the

rejection of claims 27 and 28 should be withdrawn and the claims allowed over 35

U.S.C. §112, second paragraph." However, these claims were rejected because the

they recite the limitation "*[t]he* computer-readable medium" (emphasis added) without

prior recitation of a computer-readable medium in claim 13, from which claims 27 and

28 depend, and thus the recitation lacks proper antecedent basis. As "[a] computer-

readable medium" is recited in claim 21, the rejection of claims 27 and 28 would be

overcome by amending these claims so that they depend from claim 21.

4.   Applicant's arguments filed in response to the rejection of claims 1, 3-5, 9, 11 and

12 under 35 U.S.C. 102(a) as being anticipated by U.S. Publication 2003/0095272

(Nomizu), and claims 13-17, 19, 21, 23-25 and 27 under 35 U.S.C. 103(a) as being

unpatentable over Nomizu, as set forth in the prior Office action, have been fully

considered but they are not persuasive.

In response to the above rejection, Applicant states, on page 13 of the current

amendment: "Nomizu fails to disclose 'said SIMD processor having an associated

image area separating means configured such that said SIMD processor separates

image data into a character portion and a figure portion.' As noted above, Nomizu only

discloses performing edge area judgment to determine whether a pixel region is a

character. Nomizu teaches processing the image as a whole and does not teach

separating the image data into a 'character portion' from the 'figure portion.' And such,

the rejection of claim 1 should be withdrawn and claim 1 and its dependant claims

allowed over Nomizu." Applicant provides a similar argument regarding claims 11 and

12, 13 and 21 (see current amendment, pages 14 and 18).

Contrary to Applicant's assertion, Nomizu does disclose separation of image data

into character and figure portions. Nomizu applies a filtering process using different

sets of coefficients for character edge areas (sharpening) and picture areas (smoothing)

(paragraph 0308). The use of different sets of coefficients for character and picture

areas of the image data inherently requires separation of the two types of image data at

some point prior to the filtering process.

5.   Applicant's arguments filed in response to the rejection of claims 1, 3 and 11

under 35 U.S.C. 102(b) (Applicant's statement on page 14 of the current amendment

that these claims were rejected under 102(a) is incorrect) as being anticipated by U.S.

Patent 5,317,652 (Chatterjee), and claims 12-15, 21 and 23 under 35 U.S.C. 103(a) as

being unpatentable over Chatterjee, as set forth in the prior Office action have been fully

considered but they are not persuasive.

In response to the prior rejection of the above claims, Applicant states on page

15 of the current amendment: "Chatterjee fails to disclose 'said SIMD processor having

an associated image area separating means configured such that said SIMD processor

separates image data into a character portion and a figure portion.' As noted above,

Chatterjee discloses an optical character recognition system for orientation

independence and position independence. Chatterjee is directed at a different issue

and teaches processing an image area and recognizing characters and does not teach

or concerned with separating the image data into a 'character portion' from the 'figure

portion.' As such, the rejection of claim 1 should be withdrawn and claim 1 and its dependant claims allowed over Chatterjee." Applicant provides a similar argument regarding claims 11-13 and 21 (see current amendment, page 15-17).

Contrary to Applicant's assertion, Chatterjee does disclose separation of image data into character and figure portions. Chatterjee provides a SIMD array parallel processor array unit (column 5, lines 18-19) to segment characters out of a raw camera image (column 10, line 67 – column 11, line 11). Segmentation of characters out of an image clearly implies separation of a character portion from a figure portion. Furthermore, with regard to Applicant's assertion that Chatterjee is directed at a different issue, it should be noted that Applicant merely claims an image-area separation apparatus. Chatterjee segments characters out of a raw camera image, and thus is an image-area separation apparatus.

6.   Applicant's arguments, see pages 15-17 of the current amendment, with respect to the rejection of claims 1 and 11 under 35 U.S.C. 102(b) as being anticipated by U.S. Patent 6,771,834 (Martins et al., hereinafter Martins), and claims 13 and 21 under 35 U.S.C. 102(a) as being unpatentable over Martins, have been fully considered and are persuasive. The rejection of these claims has been withdrawn.

Claim Rejections - 35 USC § 101

7.   The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

8.   Claims 13-20 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

These claims recite functional descriptive material ("[a] computer-readable program") comprising computer programs or algorithms that impart functionality when employed as a computer component (i.e., executable code; becomes one with the computer, causes the computer to perform certain acts or functions). Functional descriptive material must be embodied on a *computer readable* medium to impart its functionality. See MPEP 2106.01.

Claim Rejections - 35 USC § 112

9.   Claims 27 and 28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claims 27 and 28 each recite the limitation "[t]he computer-readable medium" in line 1. There is insufficient antecedent basis for this limitation in the claim. Note that claim 13, from which claims 27 and 28 depend, recites "[a] computer-readable *program* ... embodied on an *information storage* medium" (emphasis added). It would appear that claims 27 and 28 should be amended to depend from claim 21, which recites "[a] computer-readable medium."

Claim Rejections - 35 USC § 102

10.   The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

11.   Claims 1, 3-5, 9, 11 and 12 are rejected under 35 U.S.C. 102(a) as being anticipated by Nomizu.

Regarding claims 1, 3-5, 9 and 11, Nomizu discloses an image-area separation apparatus which processes the read image of the original image data comprising: a SIMD processor for executing an image-area separation process (paragraph 0244), said SIMD processor having an associated image area separating means configured such that said SIMD processor separates image data into a character portion and a figure portion (paragraphs 0249-0255, 0292, 0296-0304, 0308). The image area separating means further comprises: a plurality of characteristic test means for performing a plurality of characteristic tests to determine whether the image data have specific characteristics, and comprehensive test means for determining a comprehensive test result according to the plurality of the characteristic test means performed by the plurality of test means, wherein said plurality of characteristic means includes characteristic test means configured to determine whether the image data include edge data (paragraphs 0249-0255) and dotted image data (paragraphs 0269-0273). The image separation means further comprises: a data converter for converting data using the data as an address stored in a register of a register file of said SIMD processor; and a data table converter connected to the SIMD processor for converting data of a data table using, as an address, data of a register provided to the SIMD processor, wherein said image-area separation apparatus performs the image-area separation operation by causing the SIMD processor to perform the SIMD process and the data table converter to perform a sequential operation (paragraph 0244).

Regarding claim 12, Nomizu discloses an image forming apparatus comprising: an image reading apparatus to read an image of an original image data (reading unit 21

(Fig. 3)); an image-area separation apparatus which processes the read image of the

original image data said image-area separation apparatus comprising: a SIMD

processor for performing an image-area separation process (paragraph 0244), said

SIMD processor having an associated image-area separation means configured such

that said SIMD processor separates image data into a character portion and a figure

portion (paragraphs 0249-0255, 0292, 0296-0304, 0308); an image-processing means

for switching over contents of the image data in accordance with the result of the image-

separation operation performed by the image-separation apparatus (paragraphs 0308-

0309); and image forming means for forming an image onto a recording sheet in

accordance with the image data read by the image reading apparatus (image forming

unit 105 (Fig. 3)).

12.   Claims 1, 3 and 11 are rejected under 35 U.S.C. 102(b) as being anticipated by

Chatterjee.

        Regarding claims 1, 3 and 11, Chatterjee discloses an image-separation

apparatus which processes the read image of the original image data, comprising: a

SIMD processor for executing an image-area separation process (column 4, line 62 –

column 5, line 3; column 5, lines 18-19), said SIMD processor having an associated

image area separating means configured such that said SIMD processor separates

image data into a character portion and a figure portion (column 7, lines 28-49; column

10, line 67 – column 11, line 11). The image area separating means further comprises:

a plurality of characteristic test means for performing a plurality of characteristic tests to

determine whether the image data have specific characteristics, and comprehensive

test means for determining a comprehensive test result according to the plurality of the

characteristic test means performed by the plurality of test means (vector correlation

step determines whether dots correlate to a character image (column 7, line 50 –

column 8, line 5); analysis step determines whether correlated data corresponds to

recognized characters (column 8, lines 6-11)).

Claim Rejections - 35 USC § 103

13.   The text of those sections of Title 35, U.S. Code not included in this action can

be found in a prior Office action.

14.   Claims 12-15, 21 and 23 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Chatterjee.

Regarding claim 12, Chatterjee recites an image forming apparatus comprising:

an image reading apparatus to read an image of an original image data (column 7, line

10); an image-area separation apparatus which processes the read image of the

original image data, said image-area separation apparatus comprising: a SIMD

processor for performing an image-area separation process (column 4, line 62 – column

5, line 3; column 5, lines 18-19), said SIMD processor having an associated image-area

separation means configured such that said SIMD processor separates image data into

a character portion and a figure portion (column 7, lines 28-49; column 10, line 67 –

column 11, line 11); an image-processing means for switching over contents of the

image data in accordance with the result of the image-separation operation performed

by the image-separation apparatus (column 7, line 50 – column 8, line 9); and image

forming means for forming an image in accordance with the image data read by the

image reading apparatus (column 8, lines 9-11).

While Chatterjee does not expressly disclose forming an image onto a recording

sheet, it is well known in the art that images that are displayable on a monitor are also

displayable as a printed image on a recording sheet. It would have been obvious for

one of ordinary skill in the art to modify the teaching of Chatterjee by providing a printer

for outputting the processed image onto a sheet of paper, so that a hard copy of the

processed image may be obtained, if desired by a user.

Claims 13-15 and 21-23 recite a computer-readable program or computer-

readable medium comprising the limitations of above-rejected claims 1 and 3. While not

expressly disclosed in Chatterjee, it is well known in the art to provide means within an

image processing apparatus, such as internal ROM, or external means, such as CD-

ROM, storing programs for enabling the image processing apparatus or computer to

perform image-processing tasks, in general. It would have been obvious for one of

ordinary skill in the art to provide a computer-readable program or computer-readable

medium for performing the image-segmentation steps disclosed in Chatterjee, so that

such steps may be conveniently performed on a computer.

15.   Claims 13-17, 19, 21, 23-25 and 27 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Nomizu.

As mentioned above, it is well known in the art to provide means within an image

processing apparatus, such as internal ROM, or external means, such as CD-ROM,

storing programs for enabling the image processing apparatus or computer to perform

image-processing tasks, in general. As with Chatterjee, while Nomizu does not expressly disclose a computer-readable program or computer-readable medium, it would have been obvious for one of ordinary skill in the art to provide a computer-readable program or computer-readable medium for performing the image-segmentation steps disclosed in Nomizu, so that such steps may be conveniently performed on a computer.

Allowable Subject Matter

16.   Claims 6-8, 10 and 26 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

17.   The following is a statement of reasons for the indication of allowable subject matter: No prior art has been found to disclose or suggest an image-area separation apparatus as defined in claim 3, "wherein said plurality of the characteristic means includes characteristic test means configured to determine whether the image data include line screen image data," as recited in claim 6, (claim 26, which depends from claim 23, similarly recites this limitation), or "wherein the comprehensive test means determines that the image data include the character portion when the edge test means determines the image data include at least one edge component and when the dotted image test means determines that the image data include no dotted image component, and determines that the image data include the figure portion when at least one of two events occurs in which the edge test means determines that the image data include no edge component and in which the dotted image test means determines that the image

data include one of at least dotted components," as recited in claim 7, or "wherein the

comprehensive test means determines that the image data include the character portion

when the edge test means determines the image data include at least one edge

component; the dotted image test means determines that the image data include no

dotted image component; and the line screen test means determines that the image

data include no line screen; and wherein the comprehensive test means determines that

the image data include the figure portion when at least one of the following three events

occur: the edge test means determines that the image data include no edge component;

the dotted image test means determines that the image data include one of at least

dotted components; and the line screen test means determines that the image data

include at least one of line screen components," as recited in claim 8; or an image-area

separation apparatus as defined in claim 9, "wherein the image-area separation means

is configured to require intermediate data in the SIMD process and to perform the

sequential operation for the intermediate data," as recited in claim 10.

Conclusion

18.   **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time

policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE

MONTHS from the mailing date of this action. In the event a first reply is filed within

TWO MONTHS of the mailing date of this final action and the advisory action is not

mailed until after the end of the THREE-MONTH shortened statutory period, then the

shortened statutory period will expire on the date the advisory action is mailed, and any

extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas D. Lee whose telephone number is (571) 272-7436. The examiner can normally be reached on Monday-Friday, 7:30-5:00, alternate Fridays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Edward L. Coles can be reached on (571) 272-7402. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the

Patent Application Information Retrieval (PAIR) system. Status information for

published applications may be obtained from either Private PAIR or Public PAIR.

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For more information about the PAIR system, see http://pair-direct.uspto.gov. Should

you have questions on access to the Private PAIR system, contact the Electronic

Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a

USPTO Customer Service Representative or access to the automated information

system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Thomas D Lee
Primary Examiner
Technology Division 2625

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